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ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE, 4TH FLOOR
FRANKFORT KENTUCKY 40601
www.kentucky.gov

February 17, 2011

Northern KY Sanitation District No. 1
Attn: Brandon C. Vatter
1045 Eaton Dr
Ft. Wright, KY 41017

RE: Northern KY Sanitation District No. 1
AI # 2449
Lakeside Park I/I Removal GPR

Dear Mr. Vatter:

Thank you for submitting a Green Project Reserve (GPR) business case for your proposed project, funded through the Clean Water State Revolving Fund (CWSRF). A provision of the 2011, CWSRF funding cycle requires that to the extent there are eligible project applications; states shall use 20% of its Clean Water State Revolving Fund capitalization grant for green infrastructure projects. These projects are intended to address water and energy efficiency improvements or other environmentally innovative activities. The Kentucky Division of Water (KY DOW) has reviewed the GPR business case for the Lakeside Park Public & Provate Source I/I Removal Project, and has found the justification to be acceptable. If the scope of the project is altered in any way to exclude the GPR eligible components, the Northern KY Sanitation District No. 1 shall submit the changes in writing to the KY DOW and receive prior approval in writing before proceeding with construction.

We look forward to working with you in finalizing your wastewater infrastructure project. If you have any questions regarding this correspondence, please contact me at (502) 564-3410, ext 4832.

Sincerely,

Greg Goode, P.E.
Kentucky Division of Water

Cc: Jim Turner, SD1
CWSRF File

# GREEN COMPONENT SUPPLEMENT TO THE 2011 CWSRF AND DWSRF CALL FOR PROJECTS

During the 2011 Call for Projects held October 2009 through March 2010, the below referenced project was identified as "green" or included "green" components. In order to determine the green costs and whether or not the project is considered categorically green or whether a business case will be required, the Division of Water needs additional information.

Attached to this email is the current Green Guidance for the 2011 funding cycle. Green projects are classified as projects that address: Water Efficiency, Energy Efficiency, Green Infrastructure or Environmentally Innovative Activities. The guidance discusses each of these categories and the components or types of projects that would require a business case versus a classification of categorically green.

Please review the attached guidance and complete the below information. **In order for green merits of the project to be included as such on the 2011 Priority List, this form must be completed and returned via email to Division of Water no later than May 17, 2010.** Questions or completed forms should be submitted to the Division of Water contacts noted below:

| Clean Water SRF | Drinking Water SRF |
|---|---|
| Anshu Singh | Amanda Yeary |
| Anshu.singh@ky.gov | Amanda.yeary@ky.gov |
| 502-564-3410 ext. 4805 | 502-564-3410 ext. 4839 |

*Note: An itemized list of components and their related costs are all that is required at this time.*

Applicant (Must be governmental entity): Sanitation District No. 1

Project Name: Lakeside Park Public & Provate Source I/I Removal

WX / SX Number (required): SX - 21117124

Please provide contact information for questions relating to this form only:

Contact Name: Brandon C. Vatter
Email: bvatter@sd1.org
Telephone: 859-578-6756

1) Based on the attached guidance, do you consider your project a 100% green project?

Yes _____ No X

2) Based on the attached guidance, please categorize your green components into the identified categories and provide a listing of the green components and an estimation of related costs at this time:

a. Water Efficiency $ 0 (total)

Breakdown of components included with related costs:

| Component | Cost |
|---|---|
| | |
| | |
| | |
| | |

b. Energy Efficiency $ 3,900,000 (total)

Breakdown of components included with related costs:

| Component | Cost |
|---|---|
| 1. Sanitary Sewer Rehabilitation to remove Storm water inflow & infiltration | $2,800,000 |
| 2. Private Source storm water derived I/I Removal | $500,000 |
| 3. Storm Sewer construction/Rehabilitation to properly collect the removed storm water | $600,000 |

c. Green Infrastructure $ 500,000 (total)

Breakdown of components included with related costs:

| Component | Cost |
|---|---|
| Bioretention/bioswales | $100,000 |
| Green streets/curb cuts | $150,000 |
| Downspout disconnection/Rainbarrels to manage runoff onsite | $100,000 |
| Regional bioretention | $150,000 |

d. Environmentally Innovative Activities

Breakdown of components included with related costs:

| Component | Cost |
|---|---|
| | |
| | |
| | |
| | |

3) Total Project Cost related to "green" components (all categories): $ 4,400,000

**Business Case For Lakeside Park Public & Private I/I Source Removal Project**

The main objective of the Lakeside Park Public & Private Inflow & Infiltration (I/I) Source Removal Project is the elimination of sanitary sewer overflows (SSOs). Controlling SSOs in this area is of particular importance because of potential public health concerns and the anticipated benefit to the water quality of the Dry Creek watershed. The project approach is based on the removal of excess I/I entering the sanitary sewer system. This approach is expected to reduce capital expenditures for downstream conveyance improvements, as well as reducing the cost of ongoing operation and maintenance (O&M) and treatment operations. This project will result in energy savings and meets the eligibility requirements for Energy Efficiency as defined in the Green Projects guidance document. The key features of this project include:

- Implementation of a holistic approach of removing I/I from the sanitary system from both public and private sources,
- Increasing the life expectancy of SD1's assets, and
- Improving storm water systems that are undersized or non-existent with gray and green infrastructure as appropriate.

Within the project area, the work is categorized into:

- Public sanitary sewer improvements,
- Public storm sewer improvements, including green infrastructure, and
- Private source removal improvements designed to mitigate any impacts to the storm system.

Once the work is complete, flow monitors will be installed to monitor for effectiveness along with performing water quality monitoring.

SD1 believes that this project has the potential to achieve numerous benefits:

- Reduction or elimination of SSOs and other unpermitted discharges,
- Opportunities for using green solutions such as rain barrels, downspout disconnections, bioswales, bioretention and green streets that will provide both water quality and aesthetic / quality of life benefits,
- Structural renewal of aging existing sewer pipes and manholes,
- Reduction in maintenance costs by permanently addressing potential service problems such as root intrusions into sewer pipes,
- Reduced energy usage at pumping facilities and WWTPs due to reduced flows,
- Reduced WWTP operational challenges of treating highly diluted inflows,
- Reduced construction spending through the elimination of downstream improvements (larger sewers, pump stations and tanks) that will not be necessary when wet weather flows are reduced,
- Improvements in local storm water quantity and water quality when the I/I removal is blended with green solutions to holistically address all sources of storm water entering the sewers and streams, and
- A high return on investment to the City and local residents for their rate payer dollar. Residents will be able to "see" the service they are paying for and realize increased property values because of renewed infrastructure and green improvements on both the public and private sides.

This project is Phase 1 of an expected 3 phase project in the City of Lakeside Park. SD1 conducted an analysis to assess the feasibility and potential cost-effectiveness of source control through I/I removal versus conveyance and treatment to eliminate SSOs for all 3 phases of the Lakeside Park project. The results are summarized below:

| Lakeside Park Project Area | Public and Private Source Removal | Conveyance |
|---|---|---|
| Conveyance | $0 | $3.41 |
| Public Rehab | $10.99 | 10.99 |
| Private Property Removal | $1.96 | $0 |
| New Storm Water/Green | $1.66 | $0 |
| Storm Water Rehab | $0.72 | $0.72 |
| **Total Capital Cost** | **$15.3** | **$15.1**[1] |

[1]Does not include costs for upsizing downstream conveyance to treatment plant. Only includes the costs to convey flows out of Lakeside Park. Additional overflow volume occurs downstream as a result of the conveyance option.

The table above shows that the capital costs for both options are similar. However, the Public and Private Source Removal (Source Removal) option actually eliminates the local SSOs in a typical year whereas the Conveyance option simply moves the flow downstream, resulting in an increase in downstream SSOs. The source removal option is predicated on the assumption that 50% of the I/I will be removed from a combination of public source rehabilitation and private source removal. This value was developed through analysis of modeling data and comparison to field data.

Since the source removal option does not require additional costs to eliminate SSOs, it is more cost-effective than the Conveyance option that would require downstream improvements to eliminate the same volume of overflows.

In addition, the present worth cost comparison shows that the **Source Removal option results in an operation & maintenance cost savings of $1.6 million over a 25 year period (80% reduction)** due to the focus on the repair of existing sewers in the project area sooner as compared to the Conveyance option which would build new and larger downstream sewers and delay any improvements to existing sewers. The Source Removal option also results in less flow to the treatment plant because of the I/I removed. The **Source Removal option is expected to result in a reduction of 17.8 million gallons of flow to the treatment plant each year which will result in a treatment cost savings of $298,000 over a 25-year period (22% reduction)** as compared to the Conveyance option. The O&M savings is based on a comparison in total cost over a 25-year period of near-term improvement to public infrastructure versus deferred maintenance and the treatment savings is based on a unit cost of $0.07 per 100 gallons. These unit costs were derived from analysis of current treatment and conveyance costs that include energy costs to run pumping and treatment equipment.